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Johan Dahlberg

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EXAMINER

TROY, DANIEL J

ART UNIT

PAPER NUMBER

3641

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/582,111 | <b>Applicant(s)</b><br>DAHLBERG, JOHAN |  |
|                              | <b>Examiner</b><br>DANIEL J. TROY    | <b>Art Unit</b><br>3641                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 7-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:
2. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
3. Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original specification does not disclose replacing a loose granular perforated propellant with at least two propellant charges and is therefore considered new matter.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
5. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. Claims 1-6 and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maxim (US 694,295) in view of Hafstrand (US 2005/0066835).
7. Regarding claim 1, Maxim discloses, a method of combustion for tubular propellant charges with a very high charge density and high progressivity (line 47), comprising at least two propellant tubes (figures 2, 3, or 8) which have circular outer

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and inner boundary surfaces and which are radially perforated in their entirety with combustion or ignition channels (3) at an e-dimension distance selected in relation to the actual type of propellant and its desired combustion characteristics (*"to provide for suitable burning thicknesses between the perforations to secure the simultaneous completion of the combustion throughout the mass of the explosive"* lines page 1, 37-42) and the ignition of the propellant tubes is successively done one after the other (figure 8 discloses a structure where it is inherent that the tubes ignite one after the other), but lacks specifically disclosing and the maximum pressure from each combustion slightly below the maximum operational pressure of the barrel and treating at least one of the outer surface of the tube with an inhibition, surface treatment or surface coating. It is inherent that the combustion of the layer would at least partially overlap to some degree; along the entire length of the propellant layer one portion will complete its combustion before other areas (the time difference may be extremely small), therefore the next layer would begin burning while the other areas of the first layer are finishing up (partially mutually overlapping).

8. Hafstrand teaches that it is known in the art to treat a propellant surface with an inhibitor ([0009]). The use of an inhibitor allows for further control of the progressivity.

9. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Maxim, by using an inhibitor similar to that disclosed by Hafstrand, to allow for further control of the progressivity. The examiner notes that the last sentence of paragraph [0004] of Hafstrand states *"The progressivity of the powder can then in turn be accentuated by surface treatment with*

*suitable substances*" therefore it is inherent that a "*surface treatment*" would include all outer surfaces. Additionally it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the maximum pressure very close to the maximum operational pressure, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

10. Regarding claim 2, Maxim discloses, at least two of the perforated propellant tubes included in the charge have been arranged one after the other (figures 2, 3, or 8).

11. Regarding claim 3, Maxim discloses, the propellant tubes included in the charge, at least one is arranged inside the internal cavity of an outer propellant tube.

12. Regarding claims 4, 14, and 15, for the structure shown in figure 8 of Maxim it is inherent that the ignition would propagate outwardly one after another. Further Hafstrand discloses "*burn time*" ([0003]).

13. Regarding claims 5 and 16-18, Hafstrand discloses "*powered will burn towards other primed surfaces during a successive increase of the burn area, and the gas release thereby also increases.*"

14. Regarding claims 6, 19, and 20, Maxim in view of Hafstrand discloses the invention as explained above further noting that it is inherent for an inhibited substance to have a different rate of combustion.

15. Regarding claim 21, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the propellant gas generation ceased before the projectile leaves the muzzle, since it would mean the optimal amount of

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propellant is being used for that weapon and it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

16. Regarding the applicant's arguments that finding the optimum pressure would not be obvious to one of ordinary skill in the art, the examiner disagrees. Maxim page 1 lines 15-20 states that a purpose of the invention is "*to produce the desired acceleration and secure the highest ballistic results*" and one of ordinary skill in the art at the time of the invention would know that pressure is the cause of acceleration and the ballistic results of the projectile. Optimal pressure will is directly correlated to producing optimal ballistic results.

17. Regarding the applicant's argument that Maxim teaches away from the claimed subject matter because simultaneous completion is being disclosed, the examiner disagrees. The examiner feels that the applicant is misinterpreting page 2, col. 81-86 of Maxim. Figure 2 of Maxim shows concentric tubes perforated, the innermost tube includes perforation spaced at a distance to ensure that the inner tube completes combustion which propagates and completes substantially simultaneously throughout the entire mass of the inner tube; this is indistinguishable from how the applicant uses e-dimensions. The examiner further notes that it would be seemingly impossible for the inner most tube shown in figure 2 of Maxim to complete combustion at the same time as

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the outermost tube shown in the figure because the outermost tube has significantly more propellant to burn and is located farther from the initial ignition point.

### ***Conclusion***

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

19. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **DANIEL J. TROY** whose telephone number is (571)270-3742. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

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21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on (571) 272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DJT/

/James S. Bergin/  
Primary Examiner, Art Unit 3641